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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,291	06/13/2001	Ravindra U. Shenoy	01-091 1496.00113	5224
24319	7590	07/28/2005	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035			AGDEPPA, HECTOR A	
			ART UNIT	PAPER NUMBER
			2642	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/880,291

**Applicant(s)**

SHENOY ET AL.

**Examiner**

Hector A. Agdeppa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-23 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This action is in response to applicant's amendment filed on 3/21/05. Claims 1 – 23 are now pending in the present application. **This action is made final.**

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 8, 9, 12, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,545,728 (Patel et al.)

As to claims 1, 14, and 15, Patel et al. teaches a system and method for digitizing signals using triple conversion, wherein a first circuit generates an upconverted signal in response to an input signal from antenna 6 or an alternative source and a first oscillation signal from a frequency synthesizer 11 which functions as a first local oscillator. (Col. 10, lines 1 – 5) Patel et al. further teaches a second circuit generating a downconverted signal in response to the afore-mentioned upconverted signal and a second oscillation signal from a second local oscillator 16. (Col. 10, lines 32 – 37) Finally Patel et al. teaches a third circuit generating an output signal in

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response to the aforementioned downconverted signal and a third oscillation signal from a third local oscillator 20, wherein third local oscillator 20 is a fixed-frequency oscillator and the frequency and phase of the oscillation signal from second local oscillator 16 is controlled so that alignment of a second intermediate frequency (IF) signal with a second SAW filter 18 can be assured. In other words, the third oscillation signal is derived from the second oscillation signal. (Col. 18, lines 40 – 44)

Note that the purpose of the upconverting and downconverting is to remove unwanted image frequencies from the final output, i.e., unwanted channels. (Col. 10, lines 9 – 11, lines 37 – 39, lines 54 – 56) Also note that Patel et al. is made of circuit elements instead of separate circuits. Nearly any combination of elements having the requisite functionality can be grouped and considered to make up a circuit as claimed. Therefore, because Patel et al. teaches that the image of the third output, i.e., the third IF signal is suppressed and the image suppression filter also suppresses response to harmonic distortion, both of which read on filtering out undesired channels. (Col. 5, lines 45 – 58 of Patel et al.)

As to claims 8 and 19, Patel et al. teaches providing selectivity via SAW filters and uses if necessary gain amplifiers to provide ample gain while not degrading the quality of the input signal as well as reducing noise, linearity, and distortion. (Col. 5, lines 50 – 58, Col. 10, lines 12 – 67)

As to claim 12, Patel et al. teaches that the above functionality resides in and is used to effect a tuner 5. (Col. 9, lines 66 – 67 and Fig. 1)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2, 3, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,545,728 (Patel et al.) in view of US 6,118,811 (Narumi et al.)

As to claims 2, 3, 16, and 17, Patel et al. has been discussed above. Patel further teaches that the first circuit comprises a first mixer 12 and a first LC filter 13 coupled to first mixer 12, wherein LC filter 13 outputs an intermediate frequency filter and receives the first oscillation signal discussed above. (Fig. 1, Col. 10, lines 5 – 17 of Patel et al.)

What Patel et al. does not teach is the use of a low noise amplifier to receive the input signal.

However, such is extremely old and well known in the art as one of a plurality of ways and means to receive an input signal in preparation for conversion as taught by Narumi et al. (Fig. 1, Col. 2, line 66 – Col. 3, line 5, Col. 4, lines 13 – 21 of Narumi et al.) Low noise amplifiers are needed in certain situations to overcome losses or to amplify a signal in preparation for processing.

Although, Patel et al. does not use a low noise amplifier, it would have been obvious for one of ordinary skill in the art at the time to have used one inasmuch as the tuner of Patel et al. simply does not need one upon initial receipt of a signal in the discussed embodiment. However, as discussed above, Patel et al. contemplates receiving input signals from alternate sources and in such cases, a low noise amplifier may very well be needed. Moreover, Patel et al. teaches that in certain embodiments insertion of an amplifier is necessary to overcome insertion losses as would be the case if a low noise amplifier would be used. (Col. 10, lines 60 – 67 of Patel et al.)

4. Claims 4 – 7, 13, 18 – 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,545,728 (Patel et al.) in view of US 4,618,863 (Collins).

As to claims 4, 5, and 18, Patel et al. has been discussed above as teaching a second circuit for downconversion. Patel et al. further teaches that the second circuit comprises a second mixer 17 for receiving the upconverted signal and a second SAW

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filter 18 (producing an intermediate frequency signal) for receiving the signal outputted from second mixer 17. (Col. 10, lines 32 – 67 of Patel et al.)

What Patel et al. does not teach is using a mixer pair and a summation circuit.

However, using mixer pairs in place of a single mixer is extremely old and well known in the art as taught by Collins. (Fig. 1, Col. 3, lines 23 – 32 of Collins)

Patel et al. simply uses a single mixer to accomplish what can also be done using a mixer pair. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used either configuration/method since the functionality is the same.

Collins also teaches that signals may be converted into in phase and quadrature phase signals. (Col. 3, lines 24 – 26 of Collins)

Patel et al. merely teaches generating the in phase and quadrature phase signals at a later point. (Col. 20, lines 41 – 47 of Patel et al.)

Again, the functionality of the claimed invention is taught but is merely performed at a different point because such is merely a design choice or preference, wherein the end output signal/result is the same,

Note that the claimed summation circuit is necessary in any apparatus wherein 2 signals are inputted, split, etc. There must be some way to re-combine the signals. Even Patel et al. teaches adding the in phase and quadrature phase output signals. (Col. 20, lines 47 – 54 of Patel et al.)

As to claims 6, 7, 13, 19, and 20, see the rejection of claims 4, 5, and 18. The same reasoning and explanation discussed with regards to claims 4, 5, and 18 apply

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her as well inasmuch as Patel teaches using again a single third mixer 21. (Fig. 1, Col. 11, lines 1 – 14 of Patel et al.) Note that the third mixer 21 acts as a filter as well. (Col. 5, lines 45 – 50, Col. 13, line 61 – Col. 14, line 10 of Patel et al.)

As to the claimed limitation wherein the third filter is a SAW filter, as discussed above, Patel et al. teaches using SAW filters. Using a SAW filter instead of a mixer with filtering capabilities is merely an obvious design choice or preference for one of ordinary skill in the art at the time the invention was made. As discussed above, regarding the second circuit, a SAW filter 18 was used to reject unwanted imaged. Patel et al. teaches that mixer 21 acting as a filter, also rejects or suppresses unwanted images. (Col. 5, lines 45 – 53 of Patel et al.)

As to claims 23, see the rejection of claim 19 and 20.

5. Claims 10, 11, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,545,728 (Patel et al.)

Patel et al. teaches that that the tuner 5 and the circuitry discussed above can be implemented on single or multiple integrated circuits or monolithic integrated circuits. Microchips themselves are simply microminiature integrated circuits. (Col. 19, lines 1 – Col. 20, line 40 of Patel et al.) Therefore, implementing such on either a single or multiple microchips is merely a design choice or preference. Such would merely depend on the components used to effect the circuitry. Just as transistors took the place of vacuum tubes, microchips took over larger circuits.



### ***Response to Arguments***

6. Applicant's arguments filed 3/21/05 have been fully considered but they are not persuasive.

As to applicant's arguments regarding the third oscillation signal being "derived" from the second oscillation signal, note that "derived" is not necessarily a term of art in this context. Patel et al. teaches that the second IF signal which is "derived" in part from the second oscillation signal is heterodyned with the third oscillation signal. BUT, Patel et al. also teaches that the frequency of the third oscillation signal is chosen such that the third mixer / circuit 21 supplies a third IF band closer to baseband than the second IF band. ((Col. 10, line 54 – Col. 11, line 38 of Patel et al.) Therefore, in fact, the third oscillation signal of Patel et al. can be interpreted as being "derived" from the second oscillation signal.

Moreover, a "fixed-frequency" third oscillator is only a "preferred" type and therefore it would at least be obvious to use a non fixed-frequency third oscillator. (Col. 18, line 42 of Patel et al.)

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3,736,510 (Wu) teaches a frequency and modulation monitor wherein mixers provide a triple-conversion superheterodyne receiver. US 5,937,338 (Tomita) teaches a scanning radio receiver of triple conversion superheterodyne tuning.

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8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hector A. Agdeppa whose telephone number is 571-272-7480. The examiner can normally be reached on Mon thru Fri 9:30am - 6:00pm.

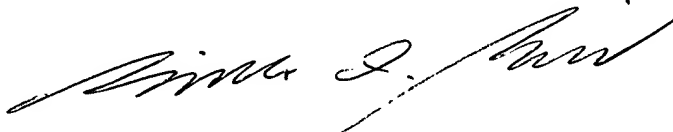
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad F. Matar can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hector A. Agdeppa  
Examiner  
Art Unit 2642

H.A.A.  
July 20, 2005



**BING Q. BUI**  
**PRIMARY EXAMINER**